EXHIBIT 7
DATE 1-26-07
HB 104

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
WATER RESOURCES DIVISION
STATE OF MONTANA

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IN THE MATTER OF THE APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 41H 30012025 BY UTILITY SOLUTIONS, LLC	**Direct Testimony of Dr. Michael Nicklin**

Direct Testimony of Michael Nicklin

1. **Please state your name and address.**

Answer: Michael Nicklin, 670 Ferguson Ave, Suite 1, Bozeman, MT

2. **Who do you work for?**

Answer: Nicklin Earth & Water, Inc.

conglomerates). It also contains volcanic components (reworked). The water-bearing zones consist of consolidated coarser fractions and fractures.

24. How does the upper aquifer differ from the lower aquifer?

Answer: For purposes of discussion, the Upper Aquifer is defined as the alluvial aquifer and the Lower Aquifer is defined as water bearing zones of the Tertiary Deposits. The alluvial aquifer is much more transmissive than the Tertiary (lower aquifer). In other words, the alluvial aquifer materials are much coarser consisting of sand, gravel and cobble and are capable of yielding high rates of flow. The Tertiary aquifer actually consists of consolidated formations. In the vicinity of the proposed place of use, the water bearing zones consisted of fine-grained sand, likely consisting of fractures as well.

The Tertiary aquifer is a confined aquifer whereas the alluvial aquifer is an unconfined aquifer. The Tertiary aquifer yields water primarily in association with the reduction in geologic formation pressure akin to opening a water faucet attached to pressurized plumbing. The alluvial aquifer yields water by gravity drainage of the pores near the pumping well.

25. Is there any relationship between the flows of the Gallatin River and this aquifer?

Answer: Yes. The Gallatin River and the alluvial aquifer are likely hydraulically connected. In other words, there is likely interaction of flow between the alluvial aquifer and the Gallatin River. In addition, based upon the pumping test interpretations of Morrison-Maierle, the Tertiary aquifer is connected hydraulically to the alluvial aquifer.

26. How did you use the data you secured from the pump tests?

Answer: The primary parameter of interest is transmissivity. In effect, a good conceptual understanding of the aquifer and its boundaries, coupled with transmissivity and storage information, allows one to quantify by various means the overall aquifer response to system stresses such as pumping.

27. What is a groundwater model?

Answer: A ground-water model is a numerical representation of an aquifer or aquifer system. A model can be an analytical model or it can be computerized numerical simulation model, such as U.S. Geological Survey MODFLOW.

28. How do hydrogeologists use groundwater models?

Answer: There are many ways that groundwater models can be used. One of the main reasons for using a ground-water model is it allows the synthesis of what is known about an aquifer system. Once a reasonable representation of the system is attained, then that model can be used to predict future behavior of the system in response to imposed stresses, such as well pumping. In the case of quantifying the interaction between surface water and ground water, some type of modeling effort must be employed.

29. **What is MODFLOW?**

Answer: MODFLOW is a three-dimensional numerical ground-water flow model developed by the USGS in 1988. It is generally the model of choice for ground-water modeling specialists. It is a tool that allows simulation and evaluation of complex aquifer systems.